Evidence-Based Medicine for Patients: A Meta-Analysis of Trials of Terazosin For Benign Prostatic Hyperplasia

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Objective. We sought to develop evidence-based methods that allow patients greater participation in treatment decisions for benign prostatic hyperplasia (BPH).

Design. We used meta-analysis to summarize the results of published clinical trials studying the effect of terazosin on clinical symptoms of BPH. Rather than produce a point estimate of terazosin's effectiveness, we estimated both the mean percent drop in BPH-specific symptom scores and the standard deviation of that drop for both terazosin treatment and expectant management (modeled as being equivalent to placebo). We then developed a simple model (Figure 1) for estimating the probability of moving from any one level of symptoms to another level. By reformulating meta-analytic results in this way, a patient can define what a satisfactory reponse to treatment is for him, and obtain an individual-specific estimate of the probability of achieving his goal with expectant management or terazosin.

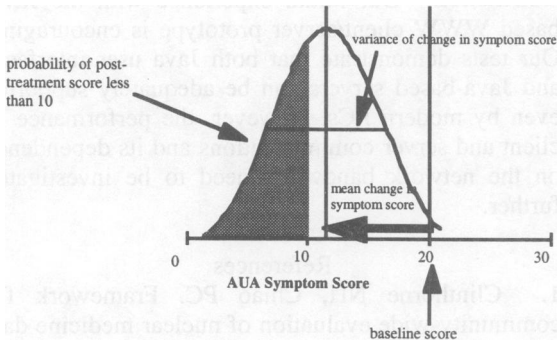

Figure 2. Model for Estimating Probability of Clinical Success.

Results. Across all studies (N=20 studies, 2459 patients), terazosin resulted in a mean drop in American Urological Association (AUA) symptom scores of 42% (95% CI for the mean, 40 to 43%) with a standard deviation of 34%. In placebo-controlled trials (N=6, 1494 patients), placebo resulted in a mean drop in symptom scores of 17% (95% CI for mean, 16 to 19%) with a standard deviation of 35%. Using a world wide web (WWW) server, a common gateway interface program and a database, we constructed an "electronic decision board" which interactively estimates the probability of a patient achieving his aspired degree of symptom relief. The application assesses the subject's baseline and aspired degree of BPH symptoms electronically using the AUA scale. It then dynamically creates a customized web page, using the model shown in Figure 1, which displays the probability of symptom relief in text and graphical form. An example page is shown in Figure 2. The application can be found at http://preferences.stanford.edu/BPH/calculator.html.

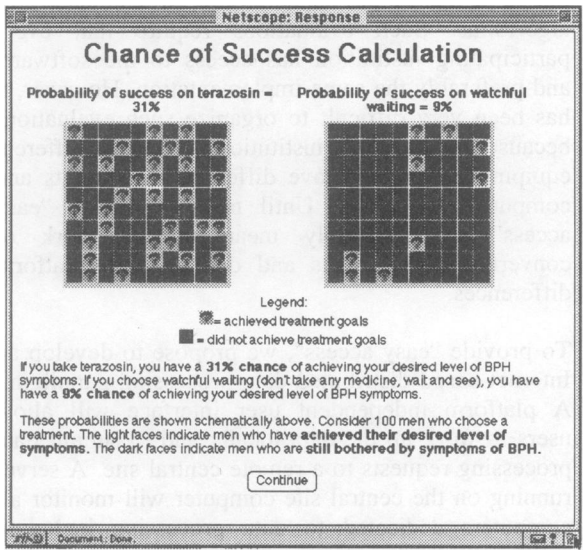

Figure 1. WWW page showing probability of clinical success.

Conclusion: The effectiveness of terazosin depends both on a patient's level of symptoms and his aspired level of relief. By reformulating meta-analytic models for continuous variables in terms of both the mean and SD of the drop in symptoms, it is possible to allow patients to define the level of effect they consider efficacious and to provide patients with an individual-specific summary estimate of the probability of achieving their treatment goals.

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